

U.S. Army Chemical Corps Research and Development Command
U. S. ARMY BIOLOGICAL WARFARE LABORATORIES
Fort Detrick, Frederick, Maryland

CMIRD-BW-10-PD

21 April 1960

Dr. Joshua Lederberg
Genetics Department
Stanford University
Stanford, California

Dear Dr. Lederberg:

A little more information is available on the automatic collecting system used in the BW aerosol warning device about which I wrote to you earlier, and I am passing this along. There may be some principles here which would be applicable to remote investigation of particles in planetary atmospheres. We would be delighted to furnish all information we have on this or other devices to any group you may have working on your problem.

Mr. Arthur Rawson, the engineer in this division concerned with the development of this device, asked if you are acquainted with Dr. Per Scholander of the Oceanographic Institute in La Jolla. Mr. Rawson reports that Scholander has devised some excellent equipment for micro-analysis.

I appreciate the clipping you sent concerning the infra-red detecting device developed at the Army Chemical Center. We had a parallel interest in this device and as a matter of fact had a considerably more sensitive version of it constructed for our own experimental program. We had hoped we could determine proteinaceous material in the air with it but the adsorption bands for protein in the infra-red are not too strong and the concentrations we were interested in were much lower than the concentrations needed for CW agents. I think the infra-red adsorption principle could have application in determination of planetary atmospheres and the like, but we would be a little loath to depend upon it for a determination of the presence of airborne biological matter.

The NASA has cleared my talk for presentation at the SAB provided I say that they are "interested" in space vehicle sterilization rather than this is their "policy". I am sending along a copy of this paper in which you may be interested. I felt that even before such a group as the SAB, one could not discuss how one might sterilize space vehicles without taking up the question of "why do it" first. I have borrowed quite heavily from you in this discussion and would appreciate any comments you may care to make. I hope I am not misquoting your thinking in this matter.

21 April 1960

We have really done nothing on the question of the effect of extremely high vacuum on bacteria except talk some more about it. I still think that it would be interesting to perform the experiment some time, just as Becquerel exposed bacteria to temperatures within a fraction of a degree of absolute zero. Dr. Urey is probably right in that we would likely find no unexpected vacuum effect, just as Becquerel found no unusual cold effect, but it would tidy up the record. I tried to interest Dr. Krauss of the University of Maryland in the experiment, since he is already planning an experiment to see whether or not mold spores would grow in outer space, but I am afraid I didn't get very far. His equipment is just about constructed and cannot be readily adapted to perform a vacuum experiment.

Sincerely,

Charlie

2 Incl

CHARLES R. PHILLIPS
Chief, Physical Defense Division